



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D135-1027-253
Job Sheet 169672



Part No: D135-1027-253

Job Qty: 1 ea

Part Name: Mid Height Aft Crosstube



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 12/18/17

Job Tracking No:

Due Date: 1/11/18

Created By: Diane Baker

Type: Stock

Description:

Note: TBD DWG REV A IPP REV:A 17.01.24 NEW ISSUE DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
110	Purchasing	1 pcs		1/11/18	0.00	0.00	Purchasing		JAN 22 2018
120	Packaging	1 pcs		1/11/18	0.00	0.00	Packaging2		
130	QC	1 pcs		1/11/18	0.00	0.00	QC15		PD 15322
140	Outsource	1 pcs		1/11/18	0.00	0.00	Outsource2		
150	Packaging	1 pcs		1/11/18	0.00	0.00	Packaging2		
160	QC	1 pcs		1/11/18	0.00	0.00	QC5		
170	Packaging	1 pcs		1/11/18	0.00	0.00	Packaging3-1		
180	QC21-FG	1 Ea		1/11/18	0.00	0.00	QC21		

Part Op 110 - Issue P/O to Tube Caron: 038679 Manufacture D135-1027-253 as per dwg (Bend, Remove excess Descriptions: material after bending, Drill) **Ship extrusion D6027-115** ***AS PER DWG NOTE 10, EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.*** Material release note is required
120 - Ensure material release note is attached
140 - ISSUE P/O: _____ C OF C IS REQUIRED
150 - C OF C IS REQUIRED
DEC 19 2017 JLB

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
110-Purchasing	D135-1027-253P 5024183	1	0	0	0
	D6027-115	1	4	0	0

Part Specifications

Specifications could not be found.

Plex 12/18/17 2:40 PM dart.baker.diane



P.T.O.

1005 1000
1005 1000

1005 1000

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☒ Quality ☐ Other ☐			
Date : <u>18-11-20</u>	Step #: <u>130</u>	QTY Effective : <u>1</u>		MRB (QSI042) Approval DAS 9 9-89 <u>18-11-20</u>	
Description Work Order Deviation		Disposition		Completed By	
eng. use for testing material is also not to release drawing.		Scrap destroy.		DAS 9 9-89 <u>18-11-20</u>	
				Lead hand / Supervisor Approval Verification DAS 9 9-89 <u>18-11-20</u>	
				QC / QA Coordinator Approval DAS 9 9-89 <u>18-11-20</u>	
				<u>18-11-20</u>	
Root Cause Environment ☐ Design ☒ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☒ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

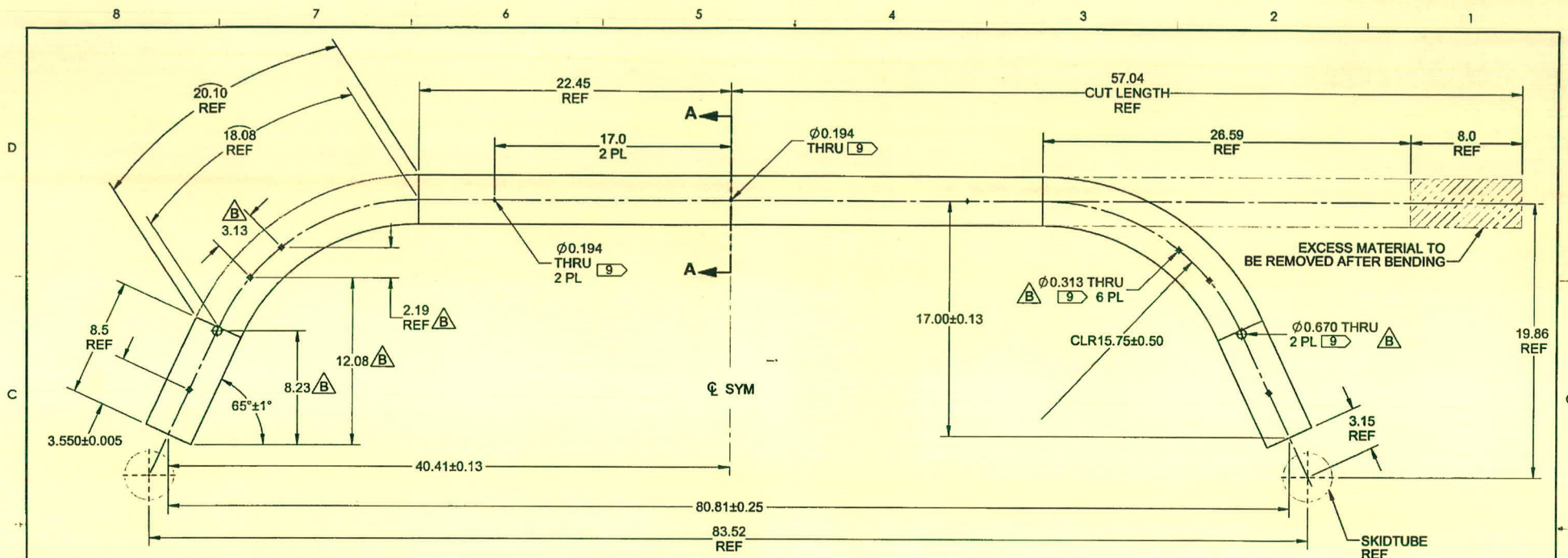
450
1/2

450
1/2

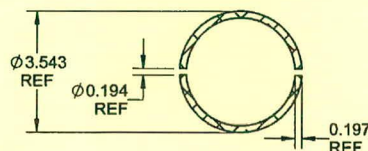
450
1/2

450
1/2





D135-1027-253 MID HEIGHT AFT CROSSTUBE



SECTION A-A
SCALE 2X

RELEASED
2017-08-01
SCN 17-607

NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6027-115
STRAIGHT LENGTH = 114.08±0.06 (BEFORE BENDING / TRIMMING)
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: PER QSI 044 6.1
- 7) WEIGHT: 20.57 lbs
- 8) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE SHALL BE NO LARGER THAN 0.25.
- 9) HOLES TO BE ALIGNED WITHIN 0.005 IN RELATION TO THE HOLE ON OPPOSITE SIDE OF CROSSTUBE.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038. TO BE PERFORMED AFTER FINAL POST-BEND GRINDING. ANY ADDITIONAL GRINDING REQUIRES ANOTHER LPI INSPECTION.
- 12) MAXIMUM TUBE FLATTENING DUE TO BENDING IS 2% BASED ON OD.

B	ADD QTY (2) Ø 0.313 HOLES, 3.13 WAS 3.15, 12.08 WAS 12.04. REASON: DESIGN CHANGE	ML	17.05.25
A	NEW ISSUE	ML	17.01.31
REV.	DESCRIPTION	BY	DATE
DESIGN	ML		
DRAWN	ML		
CHECKED	NO		
MFG. APPR.	DD		
APPROVED	WM		
DE APPR.	CP		
DATE	17.05.25		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D135-1027-253	REV. B SHEET 1 OF 1
TITLE MID HEIGHT AFT XTUBE	SCALE NTS
COPYRIGHT © 2017 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART AEROSPACE LTD		Work Order:	
Description: MID HEIGHT AFT CROSSTUBE		Part Number:	D135-1027-253
Inspection Dwg: D135-1027-253		Rev: B	Page 1 of 2

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
3.550" TYP	+/-0.005"					
8.23" TYP	+/-0.030"					
12.08" TYP	+/-0.030"					
2.19" REF	+/-0.030"					
3.13" TYP	+/-0.030"					
Ø.194" THUR 2PL	+0.006" -0.001"					
Ø.194" THUR	+0.006" -0.001"					
17.0" 2PL	+/-0.100"					
Ø.313" THUR 6PL	+0.006" -0.001"					
Ø.670" THUR 2PL	+0.006" -0.001"					

WALL THICKNESS MEASUREMENTS

LOCATION FROM CL	DWG DIM	R1	R2	R3	R4				
CL	0.197"								
21"	0.197"								
21"	0.197"								
CENTER OF BEND	0.197"								
CENTER OF BEND	0.197"								

OUTSIDE DIAMETER MEASUREMENTS

LOCATION	DWG DIM	M1	M2				
CL	3.543"	3.542	3.546				
CENTER OF BEND	3.543"	3.533	3.516				
CENTER OF BEND	3.543"	3.533	3.516				

CRUSHING

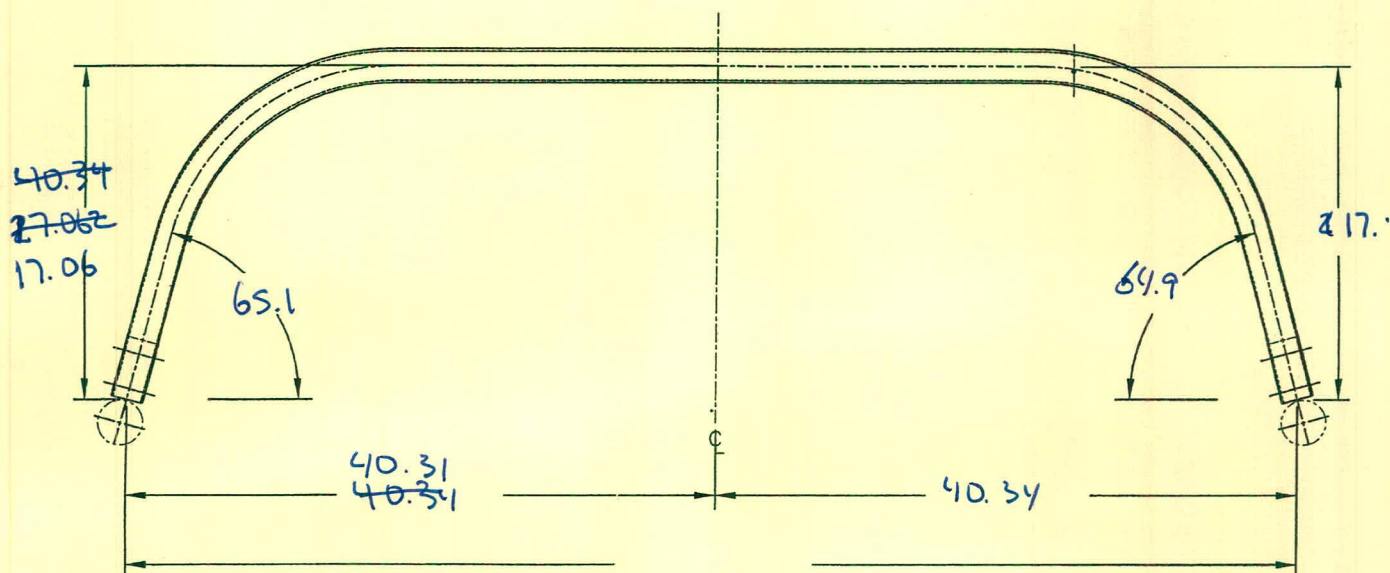
	SIDE A	SIDE B
MAX 2%	19	15

TWIST

	SIDE A	SIDE B
MAX 0.25"		

DART AEROSPACE LTD		Work Order:
Description: MID HEIGHT AFT CROSSTUBE		Part Number: D135-1027-253
Inspection Dwg: D135-1027-253 Rev: B		Page 2 of 2

Required Dimension	Min	Max
Height	16.87"	17.13"
1/2 Span	40.28"	40.54"
Angle	64°	66°
Total Span	80.56"	81.08"
Bending Passes		
Crushing	0%	2%
Twist	0.0"	0.25"



Measured by:		Checked by:		QC Inspector:	
Date:		Date:		Date:	

Engineering Approval: (If necessary)		Date:	
--	--	--------------	--

Rev	Date	Change	Revised by	Approved
A	18/01/16	New Issue	ED	



SHIPPING BILL

BOL 12425
16/01/2018

Tube Caron Inc.

99 Louis-Joseph-Doucet
Lanoraie, QC, Canada
J0K 1E0
Phone: 450-887-2766

Fax: 450-887-2897

Ship To:

Dart Aerospace Ltd
1270 Aberdeen Street
Hawkesbury, ON, Canada
K6A 1K7
Phone : 613-632-1053

Fax : 613-632-4443

Sold To:

Dart Aerospace Ltd
1270 Aberdeen Street
Hawkesbury, ON, Canada
K6A 1K7
Phone : 613-632-5200

Fax : 613-632-4443

Third Party Billing:

Ln	Item	Qty	Po	Job	Weight	UOM
1	PALETTE	1			20.00	Pounds
	BOITE COMBO	1			13.00	Pounds
	D135-1027-153 REV B	2	PO038679	J17875-2	29.14	Pounds
	D135-1027-253 REV B	4	PO038679	J17875-1	79.24	Pounds

JAN 22 2018

Carrier:
Phone:
Way Bill:

Journey Freight
1-888-633-1252 #3221

Fob:
Freight Charges:

Fob Lanoraie
Collect

Total Of Packages :

Carrier : Journey Freight

1 SKID
48 X 40 X 91

Total Weight:

141.38 #

Shipper : Tube Caron Inc.

Declared Value :

(No Additional Insurance Required)

Not Applicable For Insurance Purposes

16-01-2018

Audrey Tauxemau



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO038679

Supplier: TUB001-VC
Tube Caron Inc.
99 Louis-Joseph-Doucet Street
Lanoraie
QC
JOK 1EO Canada
Phone: 450-887-2766
Fax: 450-887-2897

PO No: PO038679
PO Date: 12/18/17
Due Date: 1/12/18

**Purchase Order
Revision:**

Revision Date:
Ship-To Contact: Phone:

Via: Ground
Pymt Terms: Net 30

Freight Terms:
Special Comments:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

E-MAILED
DEC 19 2017

Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	D135-1027-253P		Mid Height Aft Crosstube As Per Dwg D135-1027-253 Rev. B	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169662 - Priority 1										
2	D135-1027-253P		Mid Height Aft Crosstube As Per Dwg D135-1027-253 Rev. B	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169670 - Priority 1										
3	D135-1027-253P		Mid Height Aft Crosstube As Per Dwg D135-1027-253 Rev. B	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169671 - Priority 1										
4	D135-1027-253P		Mid Height Aft Crosstube As Per Dwg D135-1027-253 Rev. B	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169672 - Priority 1										
5	D135-1027-251P		Std Height Aft Crosstube As Per Dwg D135-1027-251 Rev. C	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169663 - Priority 2										
6	D135-1027-251P		Std Height Aft Crosstube As Per Dwg D135-1027-251 Rev. C	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169675 - Priority 2										
7	D135-1027-251P		Std Height Aft Crosstube As Per Dwg D135-1027-251 Rev. C	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note Job# 169673 - Priority 2										
8	D135-1027-251P		Std Height Aft Crosstube As Per Dwg D135-1027-251 Rev. C	Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00
Line Item Note job# 169674 - Priority 2										
9				Firmed	1/12/18	1 pcs	0 pcs	1 pcs	\$600.00/pcs	\$600.00

10

CERTIFICATE OF CONFORMANCE

CUSTOMER : Dart Aerospace

DATE : January 16, 2018

P.O.# PO038679

I certify that the following parts were manufactured to the specifications stated on the drawings listed below.

Note: Material for manufacturing of parts is provided by Dart Aerospace.

PART NO.	QTY.	DRAWING NO. / REV.
D135-1027-253 MID HEIGHT AFT XTUBE	4	D135-1027-253 / REV.B
D135-1027-153 MID HEIGHT FWD XTUBE	2	D135-1027-153 / REV.B

Note: 1) 2x D135-1027-153 were manufactured instead of the 4 requested on PO038679 due to the limited extrusions available. This information was communicated to Robert Aboud.

2) Center hole of Ø0.194" on one of the D135-1027-253 parts has a small defect that was accepted by Eric Downing.

Sincerely,



Michael Plante

